MORE ON BONDING:

1. What part of the atom is important in forming chemical bonds? Does it make a physical connection like a bridge? If not, what would be a better description?

2. In the descriptions below, determine which of the following types of bonds is being described: polar covalent, ionic, non-polar covalent.

* This bond is like joint custody of a child, where one parent gets the child one week and the other the next week.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* This bond is like joint custody of a child where one parent gets the child most of the time and the other parent gets the child for a couple days maybe here and there.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* This bond is like custody of a child where one parent takes care of the child and the other parent never sees the child. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Electronegativity determines what sorts of bond will form. By subtracting one electronegativity value from the other and taking the absolute value of that number, we can predict whether the bond is ionic (4.0-1.7), polar covalent (1.7-0.41), or non-polar covalent (0.4-0.0). The values for each molecule are listed on the attached periodic table. Show your work.

Eg. NaCl, Na=0.9 Cl=3.0

|0.9-3.0|=2.1

This is an Ionic bond because the value is between 4.0 and 1.7

a. C=C b. H2O c. HCl

d. ZnO e. CaCl2 f. CH4

4. What types of elements form covalent bonds?

5. What types of elements form ionic bonds?ANSWER KEY

1. Electrons, there is no physical structure made but rather the electrons continue to move in their path, more like a cloud merging into another cloud
2. Non-polar covalent, polar covalent, and ionic
   1. C=C: 0, non-polar covalent
   2. H2O: 1.4, polar covalent
   3. HCl: 0.9, polar covalent
   4. ZnO: 1.9, ionic
   5. CaCl2: 2.0, ionic
   6. CH4: 0.4, non-polar covalent
3. Nonmetals and hydrogen
4. Can include a variety of elements, particularly metals